

CLAIMS

We claim:

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A method in a video decoding system for adapting to resource constraints, said method comprising steps of:

determining whether a resource constrained mode is to be initiated; and responsive to determining that the resource constrained mode is to be initiated, initiating the resource constrained mode, including foregoing decoding of portions of received video input.

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- 2. The method of claim 1, wherein the determining step includes determining that the resource constrained mode is to be initiated responsive to inadequate memory availability.
- 3. The method of claim 1, wherein the determining step includes determining that the resource constrained mode is to be initiated responsive to inadequate bus bandwidth availability.
- 4. The method of claim 1, wherein the determining step includes determining that the resource constrained mode is to be initiated responsive to user interaction.

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The method of claim 8, wherein the resource constrained mode is one of a plurality of resource constrained modes determined by the user interaction.

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- The method of claim 8, wherein the user interaction includes causing the video decoding system to reduce spatial resolution of video output.
- 7. The method of claim 8, wherein the user interaction includes causing graphics to be generated and output along with the video output.

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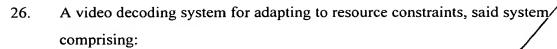
- 8. The method of claim 1, wherein the determining step includes determining that the resource constrained mode should be initiated responsive to receiving from a video transmitter data describing the received video input.
- 5 9. The method of claim 1, wherein the received video input is encoded using a Motion Picture Experts Group (MPEG) encoding scheme.
 - 10. The method of claim 9, wherein the initiating step includes foregoing decoding of at least one bi-directional frame (B frame).
 - 11. The method of claim 9, wherein the initiating step includes foregoing decoding of at least one predictive frame (P frame).
 - 12. The method of claim 9, wherein the initiating step includes foregoing decoding of a plurality of frames, and wherein the method further comprises repeating presentations of decoded frames to a user in place of the plurality of frames that are not decoded.
 - 13. The method of claim 12, wherein the decoded frames that are repeated to a user include intra-coded frames (L frames).
 - 14. The method of claim 12, wherein the decoded frames that are repeated to a user include predictive frames (P frames).
 - 15. The method of claim 1, wherein the amount of received video input for which decoding is foregone varies based upon degree of resource constraint.
 - 16. The method of claim 15, wherein the degree of resource constraint is determined in view of an amount of resource availability and an amount of additional resource needed.
 - 17. The method of claim 16, wherein the resource constraint includes memory constraint.



- 18. The method of claim 16, wherein the resource constraint includes bus bandwidth constraint.
- 19. The method of claim 16, wherein the amount of additional resource needed is determined at least according to at least one look-up table.
- 20. The method of claim 16, wherein the amount of additional resource needed is determined at least according to a history of resource need.
- The method of claim 16, wherein the type of received video input for which decoding is foregone is also based upon degree of resource constraint.
 - 22. The method of claim 1, wherein the initiating step includes maintaining existing resource priorities controlling devices using the resources.
 - 23. The method of claim 1, wherein the determining and initiating steps are performed in a digital home communication terminal including an interrupt driven central processing unit that is notified when a resource becomes constrained.
 - 24. The method of claim 1, wherein the initiating step includes continuing to present audio to a user at a regular rate and maintaining audio and video synchronization during the resource constrained mode.
 - 25. The method of claim 1, further comprising a step of terminating the resource constrained mode responsive to determining adequate resource availability.

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determination logic configured to determine whether a resource constrained mode is to be initiated; and

- initiation logic configured to initiate the resource constrained mode responsive to the determination logic, including foregoing decoding of portions of received video input.
- 27. The system of claim 26, wherein the determination logic is further configured to determine that the resource constrained mode is to be initiated responsive to inadequate memory availability
- 28. The system of claim 26 wherein the determination logic is further configured to determine that the resource constrained mode is to be initiated responsive to inadequate bus bandwidth availability.



29. A video decoding method comprising the steps of:

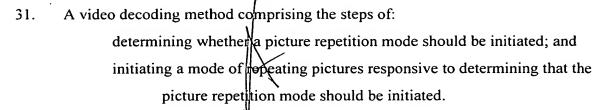
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determining that a video decoding rate should be reduced while maintaining synchronization with an unmodified audio decoding rate; and reducing the video decoding rate accordingly.

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30. The method of claim 29, wherein the determining step is responsive to a step of determining that at least one resource is constrained.







The method of claim 31 wherein the determining step is responsive to a step of determining that at least one resource is constrained.

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